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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/842,827	04/17/1997	DAVID W. LEUNG	077319/0125	5646

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EXAMINER	
PROUTY, REBECCA E	
ART UNIT	**PAPER NUMBER**
1652	15

DATE MAILED: 05/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

The request for deferral/suspension of action under 37 CFR 1.103 has been approved.

B.S

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SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.

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DATE MAILED:

Please find attached a communication from the EXAMINER in charge of this application

Commissioner of Patents

Office Action Summary

Application No.	Applicant(s)
08/842,827	Leung et al.
Examiner	**Art Unit**
Rebecca Prouty	1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-16* is/are pending in the applica

4a) Of the above, claim(s) _____ is/are withdrawn from considera

5) ☒ Claim(s) *2, 14, and 15* is/are allowed.

6) ☒ Claim(s) *3, 5, and 10-13* is/are rejected.

7) ☒ Claim(s) *1, 4, 6-9, and 16* is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Applicants copying of the suggested claim presented in the previous Office Action is acknowledged. The following Office Action is provided to clarify the status of all the claims prior to the suspension of Action included herein.

The restriction requirement presented in the Office Action of 12-12-97 is withdrawn. As such Claims 1-16 are examined herein.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 5 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kai et al. in view of any one of GENBANK entries AA040858, W04968 or H68363.

Kai et al. teach the isolation of porcine PAP and the isolation of and expression of the mouse PAP gene.

Each of GENBANK entries W04968, H68363, and AA040858 disclose a fragment of human cDNA which comprises a sequence highly homologous to a portion of the sequence of the mouse PAP gene disclosed by Kai et al. It is well known in the art that each EST corresponds to the production of some protein as ESTs are fragments of cDNAs which are produced by reverse transcription from mRNAs of a particular cell type. Only expressed proteins have corresponding mRNAs in a cell and thus each EST corresponds to an expressed protein. While a EST encodes only a portion of the cDNA encoding a particular protein, each EST clearly provides a suggestion that the cell from which the EST was reverse transcribed expressed a corresponding protein. The high homology of the cited ESTs to the mouse PAP gene disclosed by Kai et al. clearly suggests that the protein to which each of these ESTs correspond is the human homolog of the protein of Kai et al. As such it would have been obvious to one of ordinary skill in the art that there is a human homolog of the PAP of Kai et al. which is highly homologous to the mouse and porcine proteins.

Therefore, as Kai et al. teach that type 2 PAPs such as that encoded by the disclosed gene play a role in the regulation of

signal transduction by phospholipase D, it would have been obvious to one of ordinary skill in the art to isolate the gene encoding the human homolog of the porcine and mouse PAPs disclosed by Kai et al., to recombinantly express this gene to produce the human PAP and to use this enzyme for the dephosphorylation of phosphatidic acid and the regulation of signal transduction.

The above rejection has been withdrawn with respect to Claims 2 and 6 which recite human PAP proteins with specific amino acid sequences. While the human ESTs provide a reasonable suggestion that a human homolog of the PAPs of Kai et al. exists and translation of these ESTs would provide some peptide fragments of the human protein of SEQ ID NO:2, one of ordinary skill in the art could not have reasonably expected that the human homolog of the PAP of Kai et al. would be the protein of SEQ ID NO:2 as the presence of allelic variations as well as splice variations within human proteins is well established such that multiple different amino acid sequences encoding a human PAP could be present.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kai et al. in view of any one of GENBANK entries AA040858, W04968 or H68363 as applied to claims 5, and 10-12 above, and further in view of Brindley et al.

Kai et al., AA040858, W04968 and H68363 are discussed above.

Brindley et al. teach that mammalian type 2 PAPs dephosphorylate phosphatidic acid, lysophosphatidic acid, sphingosine-1-phosphate and ceramide-1-phosphate to generate products important in signal transduction pathways.

Therefore, as Kai et al. and Brindley teach that type 2 PAPs such as that encoded by the disclosed gene play a role in the regulation of signal transduction by phospholipase D and other proteins, it would have been obvious to one of ordinary skill in the art to isolate the human homolog of the porcine and mouse PAPs disclosed and to use this enzyme for the dephosphorylation of lysophosphatidic acid, sphingosine-1-phosphate and ceramide-1-phosphate and the regulation of signal transduction.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over GENBANK entry U79294 in view of Kai et al.

GENBANK entry U79294 teaches a cDNA sequence from a human brain library. This cDNA is identical to bases 225-1362 of SEQ ID NO:6 except for a single base deletion encompassing all of the coding sequence of SEQ ID NO:5. This cDNA also exhibits 62% sequence identity with the mouse cDNA encoding PAP of Kai et al.

Kai et al. teach the isolation of porcine PAP, the isolation of and expression of the mouse PAP gene and that PAPs are

important enzymes glycerolipid biosynthesis as well as signal transduction pathways.

In view of the sequence identity between the cDNA of GENBANK entry U79294 and the mouse PAP cDNA of Kai et al, it would have been obvious to one of ordinary skill in the art that the cDNA disclosed by GENBANK entry U79294 encodes a human PAP-like protein. Therefore, it would have been obvious to one of ordinary skill in the art to insert the cDNA of GENBANK entry U79294 into an expression vector and express the encoded protein in order to produce antibodies to a human protein that would be reasonably expected to have a role in glycerolipid biosynthesis and/or signal transduction pathways.

Claims 4, 6-9, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 1 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 14. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

The only difference in Claim 1 and 14 is that Claim 1 specifically recites that the encoded protein is human phosphatidic acid phosphatase. However, this is an inherent property of the protein of SEQ ID NO:2 so this additional language is not further limiting of Claim 1.

Claims 2, 14, and 15 are allowed.

As applicants copied the suggested claim presented in the last Office Action, no response by applicants to the remaining issues in this Action is necessary at this time as *ex parte* prosecution is stayed pending a decision by the Board of Patent Appeals and Interferences of whether an interference will be declared. Upon resumption of prosecution, applicants will be notified and given a time period for response to the outstanding rejections in this Office Action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca Prouty, Ph.D. whose telephone number is (703) 308-4000. The examiner can normally be reached on Monday-Friday from 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy, can be reached at (703) 308-3804. The fax phone number for this Group is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Rebecca Prouty
Primary Examiner
Art Unit 1652